

Vehicle Theft Information and Tracking using IoT

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Abstract - Theft prepared limit uses a GSM application made and presented in a mobile phone contraption, which is embedded in the vehicle to talk with the vehicle owner's wireless. The remarkable imprint scanner channels the exceptional sign of the owner of the vehicle, if it isn't the owner, by then the vehicle won't ignite and the correspondence is developed by methods for SMS. The GSM modem is used to send the circumstance of the vehicle from a remote spot. The GPS modem will incessantly give the data to exhibit the circumstance of the vehicle. Comparative data is sent to the compact at the furthest edge from where the circumstance of the vehicle is mentioned. Right when the requesting by the customer is sent to the number at the GSM modem, the system normally sends an appearance answer to that adaptable demonstrating the circumstance of the vehicle. The proposed arrangement gives information with respect to vehicle character, Safe controlling and arranging on steady reason. This information is accumulated by the ARM7 Utilizing different modules.

Keywords - IOT, GPS, GSM, LCD, Tracking

I. INTRODUCTION

As per ongoing reports, the crime percentage is high identified with vehicle robbery. In the event that you have the correct Vehicle robbery recognition unit, you can stop burglaries since you can bolt and open your vehicle anytime of time you pick. GPS are little GPS beacons that are introduced in your vehicle and it will furnish you with input information from following programming that heaps from a satellite. This gives you more authority over your vehicles. This paper presents Vehicle Theft Information and Tracking utilizing IoT to decide the area of a vehicle utilizing various strategies like GPS and other radio route frameworks working through satellites and ground-based stations. By taking the assistance of triangulation or trilateration techniques the following framework empowers to measures simple and exact area of the vehicle. Vehicle data like subtleties of area, vehicle speed, and separation voyaged, and so on can be shown on a computerized mapping with the assistance of programming by means of the Internet. It stores information and downloaded to a PC from the GPS unit at a base station and that can later be utilized for examination. This framework is significant for following vehicle at a given period and now it is getting progressively well known for individuals having costly autos and henceforth as a robbery anticipation and recovery gadget.

II. BLOCK DIAGRAM

At the underlying state of robot, (In the ensuing segments robot shows the vehicle) we need to embed a sim in the sim addition module which is available in the GSM modem. Before embeddings the sim, let us check whether there is balance in that specific sim or not. In the wake of embeddings the sim to the framework let us associate our pack through wires. After switch it ON the pack will be on and a "Welcome" message is shown on the LCD screen. In the wake of showing the welcome message, we should reset the framework multiple times by squeezing the reset catch (RS2) at that point the wheels of our robot which are in off condition will be pivoted multiple times as an indication of reset process is started. After some time "send message" warning will be shown on the LCD load up.

Further, register the working versatile number by communicating something specific through that android portable to SIM number which is available in our GSM module. For instance, the SIM number which is in the GSM module is 9999999999. To this number we ought to send SMS as 1111111111 which is the working portable number from our android cell phone to enroll it. In the wake of sending the message that sent number will be shown on the screen. Presently the enlistment of the versatile number was finished. After this procedure, a message "put your finger" will be shown on the LCD screen. Before embeddings a finger we ought to enlist first. For the selecting reason, click on the enlist catch and spot a finger on the unique finger impression module. At that point the finger will be selected. After culmination of enrolment, to begin our framework we should filter our finger again for the ID procedure. For the distinguishing proof procedure, we have press recognize catch and sweep unique mark by setting it on the unique finger impression scanner. In the event that the unique mark matches, at that point the vehicle will begin. On the off chance that the unique mark bungles, at that point the vehicle won't move and a message is shown as "unapproved finger" and signal beginnings ringing as a notice caution. After distinguishing proof finished the vehicle begins moving. After

distinguishing proof finished the vehicle begins moving. So as to stop our vehicle, we ought to send a SMS to the number present in the sim module utilizing enlisted portable number i.e., *0 then the vehicle will stop and we will get facilitates message of vehicle position where it has halted. Presently to begin the Robot again we ought to send a SMS to the number present in the sim module utilizing enrolled portable i.e., *1 then the vehicle will begin moving by sending a directions message of where the vehicle has begun. To know the status of our vehicle we ought to send the SMS i.e., *S then the status will be appeared in the LCD board just as in our android versatile. It shows the Latitude and longitude positions. To realize our vehicle careful position, we can duplicate the got message in the Google maps then we can know the precise situation of our vehicle.

Arduino

In Arduino Uno some simple pins and furthermore advanced pins are utilized for association. Right now, A2 pins are utilized for interfacing the accelerometer. The motivation behind these pins is utilized to change over the simple data into advanced signs. The pin A0 is associated with XOUT pin which is exhibited in the accelerometer sensor. The pin A1 is associated with YOUT pin and A2 is associated with ZOUT pin. These are utilized to deliver simple signs from the movement of the body and this sign is given to Arduino and these signs are changed over into advanced signals and are utilized for additional procedure.

D0,D1,D2 advanced pins for associations and D10,D11 with PWM usefulness. The D0, D1 pins are associated with GPS module for transmitting and accepting areas. D0 pin is associated with TX pin of the GPS module. D1 pin is associated with RX pin. The D11 pin is associated with RX pin of the GPS module and D10 pin is associated with TX pin of the GSM module. The D2 pin is associated with the anode of the LED and the cathode is associated with D5. In the middle of the cathode and D5 pin there is an obstruction with 720 ohms is associated with support the existence time of LED. D9 pin is associated with the positive of the ringer. The ringer is utilized to create sound when fall is happened. VCC and GND: Every VCC and GND pins are associated with the Arduino for accelerometer VCC is 5V and for GPS additionally VCC is of 5V. The 12V inventory is given for the GSM module.

GSM

The GSM module is used to send and receive messages throughout the world. The GSM stands for Global System for Mobile Communication. The GSM module consists of 3 pins. 2 pins are of digital pins and 1 is of GND pin. The TX pin of the GSM module is connected to the digital pin D10 in the Arduino and also the RX pin is connected to D11 digital pin in the Arduino. The GND is connected to GND pin in Arduino. The supply voltage of the GSM module is of 12V which is connected to V in pin of the Arduino. When the position of the body is crossing the threshold value, fall is detected; the message will send to relatives or care taker's mobile phone through GSM as shown in figure.

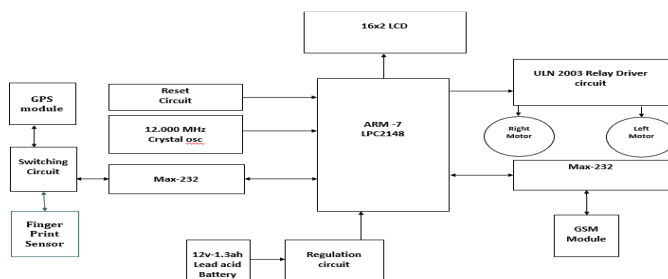


Fig. 1 Block Diagram



Fig. 2 Message Displayed on the Mobile

GPS

The GPS module is used for tracking a particular object or place with the exact location with the use of latitude and longitudinal values. The GPS is used for tracking purpose. GPS stands for Global Positioning System. The GPS module consists of 4 pins from these 4 pins 2 pins are of digital pins and the remaining 2 pins are the VCC and GND pins. The GPS module consists of p is like TX and RX. The RX pin is connected to digital pin D1 in the Arduino and TX pin is connected to digital pin D0 in the Arduino. The VCC is 5V and the GND pin is connected.

Finger PrintSensor

This is a unique finger impression sensor module with TTL UART interface for direct associations with microcontroller UART or PC through MAX232/USB-Serial connector. The client can store the unique mark information in the module and can arrange it in 1:1 or 1: N mode for recognizing the individual. The FP module can legitimately interface with 3v3 or 5v Microcontroller. A level converter (like MAX232) is required for interfacing with PC sequential port. Optical biometric unique finger impression peruser with incredible highlights and can be installed into an assortment of final results, for example, get to control, participation, wellbeing store box, vehicle entryway locks.



Fig.3 GPS Location

Buzzer

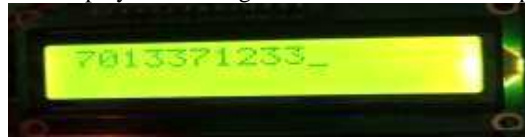
The Buzzer is an electronic component which is used to make an alarm sound. We call it as piezo buzzer because it has a piezo electronic component. It is a digital component. It has two polarities such as positive and negative polarity. The positive polarity is connected to 5V supply and the negative polarity is given to the ground pin of Arduino. The main function of the buzzer is to make alarm sound, if the fingerprint mismatches the registered fingerprint then the vehicle will not move and a message will be displayed as “unauthorized finger” and buzzer will start ring as a warning alarm.

III.RESULTS

The Results of the designed Vehicle theft information and tracking using IoT is displayed step by step as shown below.

Step 1: Registration of the Mobile number

After the insertion of sim & kit connection, a welcome message will be displayed in the LCD screen and “SendMessage” notification is displayed and the registered Mobile Number is displayed as below.



Step 2: Enrolling fingerprint of the vehicle owner

For enrolling purpose, click on enroll button & place your finger in fingerprint module. Then the fingerprint is enrolled and it generates user identification number



Step 3: Identification of Vehicle owner

i) When the fingerprint matches, a message ‘Successfully authorized’ is displayed on the screen the Vehicle will start. (Robot indicates the vehicle)



ii) When the fingerprint mismatches, a message ‘Robot Stops’ is displayed on the screen and then the vehicle stops.

Step 4: Tracking the location of the Vehicle

After the vehicle stops the location of the vehicle is displayed in the google map.



Step 5: Location of the Coordinates in the Google map



IV. CONCLUSION

The Vehicle following framework is the GPS beacon which is by and large worked by GPS is connected to the vehicle. Satellite signs are first gotten by it and afterward it decides its position co-ordinates with scope and longitude. These directions are commonly seen on a PC screen and by utilizing mapping programming we can see the specific situation of our vehicle. By and large, vehicle following innovation client can get to the data of a vehicle dependent on vehicle's position and span of every stoppage with a focal working place by entering the versatile number of clients through cell phones or sites utilizing SMS or Internet. Vehicle-following innovation is worthwhile for following and checking both business and traveler vehicle, as worried about close to home vehicle following, it permits recuperating our taken vehicle by pinpointing that gives the specific area.

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